

Cyclin D2 promoter, MSP primers

Accn. No. U47284

Promoter region analyzed: -1616 to -1394 bp

1 gagct**CGAGC**gagcagctatgc**ccctctgacg**ggtccgagcttg **CG**cagcattg **CG**cagcacat caggg**CG**cgtg  
 61 gtctctccc ttctctcgt agtgaatac accaaagg**CG** gogattgggg tgggggtga  
 121 **CG**agagaag gagtgaaga aagccacca gat**CG**tatct cctgtaaaga cagccttgac  
 181 tcaadgat**CG** cttagag**CG**gtgagggggtggtgctg **ggcggacttc**ac**CG**cag**CG**  
 241 gtctccaggg agaaagctg gcagagtga ggcgcaaac **CG**agaggt**CG** **CG**aggat**CG**  
 301 gg**CG**aaagc **CG**agctgga ggcctcagc ct**CG**gggaa agaaaggtt ggtggttt  
 361 **CG**cgagggg ag**CG**aggggg ag**CG**gacct aatccacac t**CG**ccccc cccctc**CG**g  
 421 gccatttct agaaagctg at**CG**ggttg ccag**CG**ggg **CG**aggggag **CG**g**CG**gct  
 481 tctcagaga tgcagggg**CG** aggaag**CG**ggg ttctctgc **GT**gg**CG**cgtg g**CG**ggggaa  
 541 **CG**ctctgggg cctgcccc**CG** gct**CG**c**CG**g ggcctagac **GT**cgac**CG** **GT****CG**ccccac  
 601 ggccc**CG**aa gacccccag aaaca**CG**atg gttctgtc Gaggatcaca ttctatcct  
 661 ccagaaga acccccctt cttctaata ccaaccttc cctccctt cttctctgc  
 721 acacactcg cagggggggg cagaagggac **GT**gttctg tcccttaat **CG**gggcttc  
 781 gaacagctt **CG**aggtatc aggaacacag actcagggga catcacctt atctgggt  
 841 atg**CG**aggtt gctatttct aaaaaccc cctccctat tttaactta agggacctat  
 901 tictaaagg tctgaggtca cccacttc agataacta cccacttc ctgactta  
 961 aatacaagg caggagatt agat**CG**tt ttgaagaac caaagtga ggt**CG**att  
 1021 ttgg**CG**tact acactcac atgagtga attagagc agaataga gt**CG**tagtt  
 1081 ttgttggt tgcctgc**CG** ggcccccgg catcgaggt ggtgaggg agagggttg  
 1141 gggtg**CG**gg ggaac**CG**ctt: ttgaattgg gt**CG**ggccag ctgtgttct ccttaaac  
 1201 gagaggga agaggggag ggaggagag attgaagga ggagggagg acc**CG**gaggg  
 1261 gaggaaggg gaggaagac cagag**CG**gg ag**CG**g**CG**ggg agaggagga gactaactg  
 1321 ccacacagc ttg**CG**taac **CT**ttcagagc Ggagaagagc **CG**gagggga g**CG**gagac  
 1381 agtttaag ggagac**CG**g tt**CG**agtgag gcagcc**CG**g ggcctgtgc **CT**ccaccac  
 1441 caatcc**CG**c ctccctctg ctccacttc ttctctgc ctcccttc ccc**CG**aaac  
 1501 cccattta gcaaaagaa ggaggtcagg gga**CG**ctt cccctccct tccaaaaac  
 1561 aaaaagaa aaaccttt ccagg**CG**g gaaagagga ggagggggg **CG**g**CG**gct  
 1621 ggc**CG**gag

FIGURE 1A

MSP: Unhybridized 223 BP

GT TATGTTATCT TGTGTGATG

Forward UM 22 BP MT 56

T AAAATCCAC ATACAAATCA

Reverse UM 21 BP MT 56

MSP: Unhybridized 276 BP

TTC GTGCTGCGAT CGATCG

F M 19 BP MT 58

CGAATATGTCG ATGATCG

R M 20 BP MT 56

MSP External primers 287 BP

TATTT TTGTAAAGA TAGTTTGTAT

EXT.F

TACAACCTTCTAAAAATAACCC

EXT.R

FIGURE 1B

**Twist Promoter:** Acen No. AC003986

Promoter Region analyzed: nts -51145 to -51750

1 catgtgacgt gttttcttc caccgaagag tgaacttcg cctcttcga gcacttcCG  
 61 agcCGctagc gtttgatgt tggggagCGT cagactgggt CGTtgtagag ggaagaaggag  
 121 ggcCGcaga ggcGagagag cagggCGga CGcaaatcct cagcccCGc CGcCGc-cac  
 181 gtcttcgaa acCGcaggac ctCGgtgtg ggcCGcCGc gtttgccct tggaaactaa  
 241 gggtCGctt acctgacct tgggtgttc CGCGttgac CGCGttgac gcatgcccc  
 301 ccaccCGCG ccacacacc cccagacc cagcaatca aatCGcccc aCGacactag  
 361 aggtctcttg gCGagatga gacatcaccc acgtgtaga acgtgtgcc atgtctgtg  
 421 tccagccaa tCGgattgg gcttcaCGT tggccaggac agtctctCG gacCGcttc  
 481 tggctgtCG taggttCGg gggCGctgcc CG-cacCGctc CGCGgggaag gaaatCGccc  
 541 CGCGccCGc CGaggaagg CGCGggagg gaaggggag gCGgcttag agCGgttg  
 601 agggCGgT ~~CGcCGggt~~ ~~CGcCGggt~~ tgaatggtt gggaggCGa atgttlagac  
 661 ccCGggag gagggtgga CGggggagg ggaactgaaa gCGgaactt tctataaaa  
 721 ctCGaaaag tggctcttc tcaCGctcagg ccaatgacac tgtgcccc aaactttCG  
 781 ctggcaCGa ggtataagag cctccaagtc tgcagcttc GCCCGctcc cagacacctc  
 841 CGggctctg cagcacCGc acCGtttcca ggagcttgg CGgggtgtg GtccagCGT  
 901 tgggCGcttt ctltttgga cctCGggccc attcacCG tccctccc ctcCGctc  
 961 cctccCGcc tcccCGcc GctctccCG CGagggtccc tccCGctCGT cctcctgtc  
 1021 tctctCGc CGgcCGcct GcCGggCGc gCGcCGcCGc CGggggagg tggCGggctg  
 1081 agCGccCGc cctcttctt ctgcccGagg cCGCGaggc caCGcCGc CGTtCGagag  
 1141 ~~CGatgca~~ aggtgtccag ctCGccagtc tCGCGcCG aCGacagcct gagcaacag  
 1201 gaggaaagc cagacCGga gcaGCG-cG agCGcaagc CGCGgggacG caagCGcCG  
 1261 acagcagCG cagCGCGg CGcCGCGc CGggccGagc gaggCGgttg tggCGtCGga  
 1321 ggCGcCGc agCGCGcag cCGgcccag ggcaagCGc gcaagaagtc tggCGgtgt  
 1381 ggCGCGcG CGcCGCGc CGcCGcag cagcagcag gCGcCGcG ggtcCGcag  
 1441 tcttCGagg agcggagac CGagCGgtt atggccaaCG tCGgagCG ccaGCGcacc  
 1501 cagtCGctga aCGaggCGT CG-cCGctg CGgaagatca tcccCGct gcccCGgac  
 1561 aagctgagca agattcagac cctcaagctg gCGgccaggt acatCGactt cctctaccag  
 1621 gtccctcaga GCGCGagct gactccag atggcaagct ggaactatgt gctcaCGag  
 1681 CGctcagct CGcctcttc Ggtctgagg atggagggg cctgtccat gtcCGctcc  
 1741 cagCGcag CGagagcccc caccctcca gaggggCGg agaccCGT aaggacCGcG

FIGURE 2A – FIGURE 2B

Unmethylated 193 BP

Et TCGatgggt TggtatTCG FUM (3) 21 BP AT 58

c'ctaacCAacCAacCAacc RUM (3) 20 BP AT 60

Methylated 200 BP

TCGatgggt TggtatTCG FUM (5) 20 BP AT 58

TCGatgggt TggtatTCG RM (4) 19 BP AT 58

External primers 371 BP

Gagatgagatattattatttg EXT F

aacaacaatatcattaacctaac EXT R

FIGURE 2C

RAR beta promoter, MSP primers

Promoter region analyzed: nt -196 to nt -357

[illegible]

**FIGURE 3A**

Unmethylated 163 BP

ggaggggaggtgagagatggt FUM 21 BP AT 60

Caaacaaatcca accaaaCAA RUM 21 BP AT 60

Methylated 142 BP

gagcccgagcggtcggt FM(2) 19 BP AT 60

gacaaatccaacccgagcg RM(2) 19 BP AT 58

External primers 266 BP

gtaggagggtttatt ttgtt EXT (2) F

aattacattttccaaacttactc EXT 4 (2)

FIGURE 3B

Homo sapiens serine protease-like protease (nesl) mRNA, complete cds  
(Seq ID NO:94)

ACCESSION

AF024605

```

1 accagcggca gaccacaggc aggcagagg cagctctggg tccctccct cttctctatc
61 ggcgactccc agatctctggc catgagagct cgcactccc acctctccg cgcctctggc
121 gccggggctc tgggaagct gctggcgctg ctgatggcg aactctggc cgcagaggcg
181 gcctgtctcc cccaaacga cagcgcttg gccccgaag cctatggcg cccgtgcg
241 cggcgctcgc agccttgga gttctctc tccaagggc tctgttcca ctgcgggt
301 gtctctgtgg accagattg gttgctgac gcgcgcact gcggaacaa gcaactgtg
361 gctcagtag ggaatgata cctctgctt cttcagggc agcagctcg cggagcact
421 cgtctgttg tctatccca gttaccacg ggtccagcc ccatctcgc aagcgaa
481 gtggagcag atctatgtt gctaaagtg gccagcccg tagtgcggg gcccgctc
541 cggcgctcgc agcttccca cgtctgct cagcccgag accagtcca ggttctgg
601 tggggcaca cggcgcccg gagatgaag tacaacaag gcctgacctg ctccagatc
661 actatcttga gcttaaga gtgtgggtc tctacctg gcgtgttcac caaacatg
721 atatgtgt gactggacc gggccaggac ccttgcca gtagctctg agccccctg
781 gttctgtgac agatcccca aggcattct tctgtgggt ttacccttg tggctctgc
841 cagcatccag ctgtctacac ccagatctgc aaatactg cctggatcaa taagtcta
901 cgtccaact gatccagat ctacgtcca gtgatccag atgttatgt cctgtgac
961 cagatgccc gaggctcat ctccatctt ctctctcc agtcgctga actctccct
1021 tgtctgact gttcaacct ctgcgcctt ccacacctt aaacattcc cctctacct
1081 catctcccca cctatccca tctctgct gtaactgagc tgaatgcag gaagtgttg
1141 caaaggitta ttccagagaa gccgaagc cgttcatac ccagctctg agagcagta
1201 ctgggggtcac ccaactgac ttctctgc actcccgct gtgtgacttt gggcaagcca
1261 agtgcctct ctgaacctc attctcat ctgcaaatg ggaacatga cgtgcctacc
1321 tttagacat ttgtgagga gaattgata taactgtg atgtaaatc tcaatgtatt
1381 gtcattgaag gtttaacaa gtgggtgtg agttctgact aaaggttacc tgtgtcgtg
1441 aaaaaaaaaa aaaa

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FIGURE 4A

208210-6256500T

Sequence analyzed: nts +169 to +349  
Exon 3 sequence

TCGAGAGGTC GCGCGTGTG ccccaaaCG acaCGCG-tt ggaCGCG-  
 cagccctggc aggtctCGct cttoaaCGCG CGTCTCC ACTGCGCG-g tgctctgtg gaccagagtt ggtgtgaC GTCGCG-  
 TCGAGAGGTC

FIGURE 4B

Unmethylated 128 BP

TGTAGAGGT GGTG-tgtttt Nes1 FUM 20 BP AT 56  
 CACAGGAT AAAACA AAAA TCCA Nes1 RUM 22 BP AT 56

Methylated 137 BP

TCGAGAGGTC GCGCGTGTG Nes1 FM 20 BP AT 56  
 TGTAGAGGT GGTG-tgtttt Nes1 RUM 20 BP AT 58

FIGURE 4C



HOX A5 Promoter 3' to 5'

AC004080 (SEQ ID NO:96)

16321 accaagagag **gcg**gcagag aagagaggg gga**ccg**agag **ccgcg**ctccc  
 16381 **gcgtccg**gt gatttagaa aaagctgac ttaccatga cttatgtga cgttg**ccg**cat  
 16441 ccagggttag atctggggtt ggg**ccgagccg** **cgccg**gctc **gcctccg**ctct **gcg**cact**ccg**  
 16501 ctgc**ccg**ctg ctggcagggg **gcctccctc** **gcctccgac** **ctgagccaa** cccctctct  
 16561 gctgtgatg tgggtgctg **gcgcatcg** **cgagcccg** **ctgagttg** ttaggagtt  
 16621 ttctc**cccg** **gcgtgctg** **gcgtgcg**g **cgaggggcc** **acg**cgagc agggcag**ccg**  
 16681 at**ccg**gctga ggaagt**ccg** **tgga**cg**ggc** **cgactggctg** tacctggct **cgccgagccg**  
 16741 **ccg**ctg**gcg** agct**ccg**g **gcctctccg** gagccaaagt ggc**ccg**agcc  
 16801 **ccg**ctgagat ccattgcat **gtagccg**ag **ccg**accctg **cgagtgcat**  
 16861 gct**ccg**ccag tccctgaatt gct**ccg**ccac **ggaactatga** tctccaat taigcaactg  
 16921 gtagt**ccg**g ccattggat ag**ccg**ccga aaatgagtt acaaaataag agct**ctg**  
 16981 tttttgata tgtgtctg atttggct **cccgctcgtt** tgt**ccg**ctca tagacacct  
 17041 gcacaattta tgatgaatta tggaaatgac tgggacatgt acttggtcc ctcct**ccg**ta  
 17101 ggcacccaaa tatgggt**ccg** **gactccg**aat **ccg**cggttt tgtgtccag t**ccg**aaatcc  
 17161 tgcctgatga cctctagag taaact**ccg**g cactaatagg ggaattgggt gga**ggccg**ag  
 17221 ggggtgg**ccg** **ccg**cc**ccg**g **ggccg**ctg **ccg**cc**ccg**ag tgc**ccg**ctc **cgct** **cagccg**act  
 17281 **ccagccg**ccac **ccg**ctgag **caggctcat** **ccg**ccagctt **ccg**ac**ccg**gg gctgcaagg  
 17341 **ccggggtccg** attgagttc cagccattc **tgga**aaatt attgatttc cct**ccg**agtt  
 17401 ccattaggat gaccaatg ttagg**ccg**ctc agctg**ccg**at **ccg**cc**ccg**cc**ccg** **gcg**aggatgc  
 17461 adaggattgg

FIGURE 5A



UnMatched 213 BP

ttggttcg gaattgggtg FM 18 BP AT 56

gtatgtg atttgaagtT Gtatt

aattacaattcaaatt cacatac

RUM 22 BP AT 56

UnMatched 153 BP

tttgaagg gtggcgatcg FM 18 BP AT 58

tacgtg attcgaagtc Gtat

tttc gaattcgat gaccga RM 20 BP AT 56

FIGURE 5C

4059579 01280

Sequencing 307 BP

at the time that they were  
Hox A5 Seq. F 23 BP AT 56

ggag ggaattaaat atatggt (SEQ ID NO:100)

Exhibit A5 Seq.R 21 BP AT 56

EXP263910R 268-58

Hox Exp F 20 BP AT 60

ccaggta cagccagccg gc (SEQ ID NO:101)

**FIGURE 5D**

*Homo sapiens* 14-3-3 sigma protein promoter and gene, complete cds.  
 accession No. AF029081 (SEQ ID NO:102)

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1  ggatccagc ctgccctcc actctctcc caagccaggt ccggcgatgg gtgggttatg
61 ctcatctgg caactactga aacgggttta ttaatgtgg gtattttgca caattttata
121 gaccttttt ctacatagc ttttttaaat ggaaggagaa atgicagcc acatactgt
181 ctgtgtagtc cagggtgaag ggttatcaga aggtcgtttg gttttaataa gtttatccca
241 agagaccttc tggctggaat gagtgagagt gtgtgtgcat gtgtgtgtg tttcatgtgt
301 gccctgtat atgtgtgctg gtcccagat cccctggcct gccctctgcc ccattcccctt
361 tgagtatacg aagcatctcg agccaagggg acagggggca cgtgcaactgg tcacgagaaa
421 accctggggt cccatcgggg ctacgcccag cctctatct tctctcttc tatgacttc
481 agacagccag tgtctggggg ctctgcacat ctaccccag cctaccacc cagccccag
541 gtgaggcttc cagctgggac ctgcccagac aggtctgagc tggcgtgtgt ggttgggtg
601 atggtctctg ggagcggctg ccatctcaga agccacacc cctctctga gctctgaata
661 tgggaccctg tggcaggagc tggaagacaa ggtgtttctg ccaaacggga cctccatcca
721 gagaaaaagg aagaagttga tgggtggcca agggccaagt gaagttggc ctgagttcgg
781 gccggaaact cagaggtagt tctctctctg ctgggagctg tagttttta tcaaataga
841 tctgtttcca ccatcccct ccttggccct tcaagtgggc tgaagcttg gaaagtgaca
901 taggaagtc cagaatcttg cctttctcac tccagaggtc agtggctaca gacagtggg
961 aatggcagtc acagaggttc cctctggaga aacagcttca cccagcctc agggccctgg
1021 gctactctgc agtggccctg ggaggtgag agaaagcttg aagaagcttg gggctcccac
1081 ctactcttta ttaagccag tatctcttgt tctgtctgt ataaaaact cagtttataa
1141 gagtgtcttt gctttgtttt ggtttttgtt tgccttctct ttgtgaggc cccaactggg
1201 agccctctgt tctttcagac aaatttggtt ctctctgg gagacttga gaaggcagc
1261 agcccaagta tctgctaca ttttccctca cctggcttga gctctgtccg ctggaggaga
1321 agcagagagg gctcggctcg agcccactg ggcactgaa aagagggcat cctgtccct
1381 ctctgtcccc tccactctcc cctgcctcag gggcttgag accccaatt cttctccct
1441 actgccttcc cactccatc cccaatgagt gccacgtaa gaaatgttt gagacagtag
1501 attccagttt gagagccgga gcttcccttg ctaccctc caactgggc acagagccct
1561 agccagacaa ctataacac tggcccaact ctctgtatc tccctcaggga ggcacacctg

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FIGURE 6A

1621 caggatttg ccattctctg cacagctga gggagactaa caggctctt tgcagagggt  
 1681 tagcttgtaa gaccgtttct tccctgtcg caagcactg ccgtctccct caacacaa  
 1741 tctctcttc atcgatgcc tggccaacc catgagccc gtccattgt ctggtgtgtg  
 1801 gtgggtgtg ttgtgtgtg gtgttaggt ctccaggac tcccgctaa gcagaagat  
 1861 cggatatag gccaaagcta aaagccagc ccatgtgg actgaggaag tacgttcgcg  
 1921 cagagcagt ctccagctg asagagaggt ggaaggtgag gtctgggaga ggaaggcga  
 1981 ctgcctcta ggtgcttgg ttgtgtctg tgggtctctg tatgcagg gccaccgtc  
 2041 actaacctc ttatgtctg gctttctgt cccgtgag ttctctac cgcctgtt  
 2101 tctctctg tcatgtct cttgtctaa cttgtccct tctctggc agagcaggt  
 2161 ctgtgtgca gacctctcc caccacogg cccctgagg ccgcctcct cctccaggc  
 2221 cgttaacc tctctctct cctttctg tgtctgtcg gggatctca gtgtgtcgg  
 2281 gggcttaag acctctgag gaccgtgt ctctgctt caagaaatg cctggggga  
 2341 gccaggacc cggcactcc acctgctaa cctgtgcc atctgcc accctgtctt  
 2401 acagggtct ccccacgcc tggccgctc gtgtcctc taggaccca tagggcgag  
 2461 ggcgtgct cttgcccc ttccgctcc atgcggcca gagttagaa agccataag  
 2521 caagcagca ttgcacaa atgtgtact tacgtgata tgcctctct cctctcact  
 2581 gactctcct tccggatt ttgaggtgtc aaactagga atctggctt agagctgpc  
 2641 cctccacc ctagatcag gcatagccat agtcaagcc agcaggttc ctcaggagt  
 2701 gtctgggtg ttgattgtg atgacgtc tgaacaagt ttgtgactg tctaaacca  
 2761 actgcttga tactgtcc acggctgtc cactccac ccccaacct ccacagagt  
 2821 agttaggat tagggaggtt cctgtccgc ttgtcttag gactgagg accaactag  
 2881 ccgtgcacag cccatacac ttcaagggg taaagaaag agctgagcca agaaaaatca  
 2941 gctgagcca gggctgggg ctgttgtct gctactctg accttttt tttaacca  
 3001 aaataaagt tccctctc ttgccatcc atgtctgc ttgtggcgc ttactttgg  
 3061 gcccagaga tgggacctc agtggcgtg tgaacatat gctctccct cgtccocag  
 3121 ttctctcag gttgccagt ctgtcttga gattacaag cacaagaag ccaggaggga  
 3181 cacagaaaa ttggtgaca tctttcac tctgccctc cagaacttt ggtctcaat  
 3241 ccagacaca cctactta gctgacctt ggaictgat aggtccaggt cagagtgag  
 3301 acagaggtt taactcagt ttggactgc cataccatg actgagccc agccagggt  
 3361 aacgatctca tggaaactc tctctcca gttgtgcac tacatcaga tacacatgt  
 3421 tgcatacat gtactatgg ctaaaaaat acgtaccgt accgttcagc aagggttgc

FIGURE 6B

3481 cgaatccagg gccatttc taattaac ctgtgagg gatgatga gctttttac  
 3541 agatgagg actgagac aagaagaaa caggagctc ccaaggtcac cagctggca  
 3601 aagcagcaaa tccagatgc gaactgatc ttgtcccca gctctgagcc atctgcacta  
 3661 cccaaggaat gaatacagc gtggagagat gagatcttg aaaaaccta aaattgaga  
 3721 atgtctagc cactagagg cttagagtg atctgggcca gctctctgt ttactgatg  
 3781 gagaatattg agccagagg caggagagg cctgcccag gcttataac agagctggga  
 3841 tgcagtccca cacttgacc ttattccat ctctcccat aaattctga cgtctctag  
 3901 actggactg tttagatgt ggatactcta aacgacgtg ccttcaagag aaaaagaatc  
 3961 agactacga atcaattaa agtaattga gctactctg gcactctgc tatgggtcg  
 4021 cctgtctca caaggacca caaaataat taaataatt taataacct toccaagggt  
 4081 aaccagttaa gtaagctctt ggctagttg ctggaactt gtccaaact agccagtggg  
 4141 aaaagtgtc agagcttct ctggccact gtttaattg atactccaa gacagaaca  
 4201 ttctttaga agttcttct agaatctac tgggtccct ccaactcta tcagagccct  
 4261 gtctctgtc ctacgtggg gttagagca aatgittgt gctttctca tcaaacctt  
 4321 tcaaaccta ttatccag ctadgaagg ttggttgact atggggcaga gccctgagc  
 4381 ctgtgtgtg aatgtgatgt gtacaggag gtgggaggt agcaggcaga atgaggaaag  
 4441 cccctttag ctgaacccc agctctgtc ctgtgactc agacagctg atgttgagct  
 4501 ccatgacctg ccaggacctc ctgctctgt ccgctgag ctctgaact tgggaaatgg  
 4561 aggccacag gcaaggagg gtacctaga caggaaactg gtccagatca acaggccaga  
 4621 gcgggcagg ggtatcagg agctggctc ccagatgac cctgagctc cagcaggga  
 4681 gggttagaa tgaagggtct tcttgacct tgtctatgc tatggagg gtgtgaacca  
 4741 ccaccagtc ctctgtcta agtgccgga agcaaatgtt cctctctgg actcagctc  
 4801 caaagtctc gggtctgct tccagttcc cagtgtccg ggtctccag ctctccag  
 4861 gacttggga agcccgctt ggatgactg tacaatgaa ggccctctg gtccaggac  
 4921 ctctgaggt ccagggaata tccatgata agctgtcca accaacgcc cacaggtgc  
 4981 atgtggcca gaatgcttt gaatgcacc caacaaat tagtaacct tcttaaaaca  
 5041 ttatagatt ttittgcaa ttittttt ttittagct calcagttat tggtagttt  
 5101 gttatattt atgtgtggcc caagacaat ctccaatgt ggcccaggga atgcaaaaga  
 5161 ttggacacg ctgtctaga ttgagaggaa ggaggcagt ggccagcat atggccattc

FIGURE 6C

5221 atccatctgg agagagaagg ctatgggcaa actgcttctc ttcccctgta gacaccagc  
 5281 tgggaaggcc tggccttgg taagtctcgg ctggggctcc ttccctatt cacagaacct  
 5341 aactcattg tagtgttgg tagtatatg tgcatactaa taagtgtgac ggaattttt  
 5401 cacatgataa taatagtgt catctggcgg ggcattgtgg cttatgcta taatttcagc  
 5461 actttggaag gctgagggcag gtgatcact tgagtcagc tgttgagac cagcctggcc  
 5521 aactaggta accacatct ctaactaaa aaaaaaaa tacaaaaatt agctgggtg  
 5581 gttggtgac cttgttaac ccagctact gggaggctga ggcagagaa taacttgaac  
 5641 caggagggtg gaggttcag tgagctgaga ttgtgcact acatccagc cttgtgaca  
 5701 agagcgaac tccgtctcaa aaaaaaga aataataa ataagtgtg ccatacttc  
 5761 tacttgtct tccattaact cgtgtaatcc tcaaatcc catittatg ttacaggaac  
 5821 tgaggtctac agagctaaa tcaattggcc agggccaaa acagtataa gaattacatt  
 5881 taggcagctc gatccaaa agtaactgt attctgtat ccatagacaa acaatcata  
 5941 ttccatttt ttgttgtt ttgttttag acgagctt gctctgtcac ccaggctgga  
 6001 gtgcagtgc gccatctcgg ctcactcaa cgtccgctc cgggttcaa ggaattctc  
 6061 tgcctcagc tccagatag ctgggactac aggcattgac caccatgcc ggtcaattt  
 6121 ttgtatttt agagagaca gggtttctc ggttagoca gaatggtctc gatctctga  
 6181 cctgtgac caccacctc agctcccaa agtctgaga tgacaggctg gaggccgc  
 6241 gtccagcta taactcat ttataaatt gagagataa gaaaatacaa agggccaggt  
 6301 gtatgactc aactgttaa tccagcact ttgggaacc aggcagagc gattgtga  
 6361 accagaagt tggagaccag cctgggcaac atggtgagac cctgtctca caaaaaac  
 6421 aaaaattgac tgggcgtgtt gttgacacc ttattctag gaagctgagg cagaggatc  
 6481 acctgagcc aaggagttg agactgcgt gactgtgat cataccatg tacttcagcc  
 6541 tggacatcag agtaagacc tatcttaaa aagaaattg aqaagaaga aaatcaaaag  
 6601 gaagcaaat cactcact cactactca agataccct tagaagtgg tatittagt  
 6661 tggttcact tgtttctgt gtcagttctc tatttgagc aaatctttg ggcgtcaaa  
 6721 cttaaaatcc ctttaactc ttggaaacc ctgtacatt agcccagaca tgcctcact  
 6781 cttactttg gaagaagaa ggaatctgtc ttgttcccc agattcttg cctaagctc  
 6841 cctccagag gaagatgag tgttcagaca ctcagatgag ctgggggaga cacaggctg  
 6901 tgaattatc ctggctaac tattagtgcc gcagatacc agtgaagga gccctacctg  
 6961 tgaagcccat ctactttg gctatgggtg ggcagataa gcaggaatcc atccctatg

FIGURE 6D



7021 gctcaatgcc aacacccctta gdtgaacct ttgatgaac ttgagccag ggtccggca  
 7081 agcaggaaa gaacttggc aacagagtc tccatcttg aggactctg cagggtcag  
 7141 agatggggca atgtcaaaa gaagagaaca ggcaggcac agtggctcat gccataatc  
 7201 ccaacactt ggaaggctga ggcaggaga tgccttgag ccaggagttt ggaacctgc  
 7261 tgggcaatg agtgagatc gtctctatt taaaaaaa aaaaaggaaa acaaatgaa  
 7321 actctgaga aacagctgg gggaggcatc agtagctgg aattgctcc ccaataaaca  
 7381 gaatggatg tgtcactgc acctccctt ctgacttc tctctccca ggttgtagc  
 7441 gtccctctg gggataaac tggactgct ccagcctca gacagagagc agtcgagtc  
 7501 aggcaggaaa gtggacagc cggggagctg gacccacc tctfgagcc ccgttggtc  
 7561 ctgatggcat gtgcttgga gaggcgaggt gaactgggt ggaaggccag agggtaaat  
 7621 ctaacaag tggaacag gccaacctt gaaaggaaa attgtgtagt gatggaaat  
 7681 gtgtcaaca aactactgg gtgactaat acaaggctg gctgagct tcagagctg  
 7741 ctgttcaac attcattaa gggcactct gaaagctgc acctgcgat tctggagct  
 7801 cagaaggagc ctgaggggg aatgagcct ggaggatgga accatctca ggtagctga  
 7861 gaaggagct ggaatcact tccaacaca gtctggagct catagtcag aggctcaat  
 7921 gggagaaag ctaaggag aggtgcaga aaggatttc agggaattgg tggctatgtg  
 7981 actttgaca aatctacc ctcttgaga ctatgttic ccatctcat ggtcctgtg  
 8041 gtgtcaga gacatgtgg gattaaatt cgatctgat atgaagtgc ttggnaaat  
 8101 ccatgacct acctaaact gattatct cactgaacc aagggggaa gtacctggc  
 8161 aggtataga acccatctc ctgaacctt tatggctct gtcgagctg aagcagccag  
 8281 gggctaaag cagctctag cccctggaag ggcacttga aagtggatc gatitgaga  
 8281 gccgttctt gatgtggca gccatgat gccgcccg acaagagg ggcagctgg  
 8341 agcctgaaa ggtgcagt cagtgggc ccacgccag atttctctg ctgactgtc  
 8401 tgatgatca cccacatc ccagctttt tacctttact gtagagccg aaagggttg  
 8461 gggaagag gagaggag caggtcttg gccctgttc gcccctgc tctccccc  
 8521 ctctcttgg gcttggcc ccagcaaaa ggcaggcaa gacagaga gacacagt  
 8581 ccgcatggtg tccaggag cagttagcc gccgcgcc tgtgtccc cagagccatg  
 8641 gagagacca gctgatcca gaaggcaag ctggcagagc aggcgaacg ctatgagac  
 8701 atggagcga tctgaaag cgcctggag aaggcgagg agctctctg cgaagagga

FIGURE 6E

8761 aacgtgctct cagtgccta taagaacgtg gtggcgcc agaggctgc ctggagggtg  
 8821 ctgtccagta ttgacagaa aagcaacgag gaggtctcg aggaagaagg gcccgaggtg  
 8881 cgtgagtacc ttgagaaggt gtagacigag ctccaggcg tgtgcgacac cgtctggc  
 8941 ctgtcggaaca gccactcat caaggaggcc ggggacyccg agagcgggt ctctacctg  
 9001 agatdaagg gtgactacta ccgtacctg gccaggttg ccaccgtga cgaacaaga  
 9061 cgcatacttg actcagcccg gtcagcttac caggaggcca tggacatcag caaagaagg  
 9121 atgcgcacca caaocccat ccgctgggc ctggccctga actttcgt ctlocactac  
 9181 agatcgcca acagcccga gagggccatc tcttgcca agaccactt cgaaggcc  
 9241 atggctgac tgcaacctc cagcaggac tctacaag aagcacctt cactatcg  
 9301 ctgtctgag acaactgac actgtggag gccgacaag ccggggaaga gggggcgag  
 9361 ctctccag agcccagag ctgagtgtg ccgccaacg cccgctcg cccctccag  
 9421 tcccaccc tgcgagagg actagtatg ggtggaggc ccaccttc tccctaggc  
 9481 ctgtttctg ctccaaagg ctccgtggag agggactggc agagctgagg ccaactgggg  
 9541 ctgggaccc cactctctt gcajctgtg agcgacctt accctggc atgccccac  
 9601 cctgtctc cgaccctg tctcccgac ccagagcca gactactct cctctctt  
 9661 tgcctctc ctgcccctg tgccctgtg cttaggaatt gagagtgtc cgccttgg  
 9721 gctgagaact ggacagtgcc agggctgga gatggtgtg tgtgtgtg tgtgtgtg  
 9781 tgtgtcggc cgcgcagtg caagaccgag actgaggaa agcatgtctg ctgggtgtga  
 9841 caatgttcc tctcaataa gtcccctg gacactct cgtctctt tccagtctt  
 9901 ggcgatggc tggagtggg actgaaatc gaactagaga cctgaattt ggaccttga  
 9961 gtagggccc tgaactcct agtggctca gtggccgca cgcaagactt tgaigtacgg  
 10021 ttaggccggg gtcc

FIGURE 6F

H.sapiens Wilms tumor (WT1) gene promoter.  
(SEQ ID NO:103)

ACCESSION No. X74840

```

1  agcttcagc ccagcccg gccagccagg tacaggagc cggactgcaa cgcgttgctt
61  ccccccgc gccttgcc gccacgct gcgcgcgc tgtgctctc tggcgccct
121  gggatttat agcacctct gaacacgtt cgcctcggc cccggttct tctcttgc
181  taggggtgt ttccaatag atactgact cttagaaga tccaaaacc aaacaaaac
241  acccttacc cgcctaac acctgctct ggcgcgggg gctgcctaac agagactaga
301  cgaaggagt cagatttag gaantcttg agctccaaa gattcgaa caactcgc
361  cccgtgggc gatggaggt cctcctact cctctcttg tcccttaac tggctcgc
421  ctcttgta atactgag aaccaatg gtatctcg ccaggggcc aggcgtgct
481  ggcgagtg tccagagc ttaccgct ctgcgggt tegtatcaa accctccct
541  tcacccct ccccaact ggcgccag atgctcggc cgaataac cgcagctttg
601  ggcgttgc caagggttt ctctcctc aaactagcg cgttttccc gcttaacg
661  tagaagaat agatctct cactggaag gaaactaag tgctgcgac tccaattta
721  ggtagggc aaccgtcc gcctggcga aactcacc agtaaacac tactagcga
781  tgaataag ccggcttat aactgtgca actccggc acccaactg gggacgttg
841  ctcttcgt cgcctcttg aaccacaa gggccacct ttccccagt gaccccaaga
901  tcatggcac tccctacc cactcttc gaagcaag ccagactcaa gggcgaaag
961  caaggtata cgtctcttg aagctgact gattcttc tgccttcc tgaagtcc
1021  gctcttgg agctactg cctctcct caaacact ttttagata acaacctat
1081  ctctactcc acgactcg accctgcg gactactg ttactgaac ggaacttcca
1141  gtgagagcg gctccacac tggcgaagc caagaaggg aggtggggg agggttgtg
1201  cacaccggc agtgagagc ggtgttgg ttgaagga ggtgtctcc gagaggagc
1261  ctctctgga cccgcctca cccagctc gaggcgcc ccaaggaga gcgcgcgtg
1321  cctggccgg ctgggctc tgatgaat gaggcgca gctcctgg cctcctctt
1381  ccccgccgg ccggccctc ttatttga ttgggaagc tggggcagc caggcagctg

```

FIGURE 7A

1441 gggttaaggag ttcaaggcag cagccacac cgggggctct ccgcaacccg accgcctgtc  
 1501 cgtctcccca ctctccgcc tccctccac ctactattc accacccac ccaccagag  
 1561 cggggaaggc agccaggcg ccgggcccc gcgctctct cgcgcgac ctagacttc  
 1621 tcttgatgca ggaaccggct tccactgtg tcccgagcc ggcgtctcag cacacgtcc  
 1681 gctcgggcc ttggtgcta cagcagcag agcagcagg agtcgggac ccggggcgca  
 1741 tctgggcaa gtaggcgc gccagacca gcgtgaacg tctccaggc cggaggagcc  
 1801 cggggggctc cgggtctgag cctcagcaa tgggtctcga cgtcgggac ctgaacgc  
 1861 tgcctccgc cgtccctcc ctgggtggcg gcggcggtg tgcctgct tagagcgg  
 1921 cggcgagtg ggcgcggtg ctgacttg cgcgccggg cgttcgct taagggtcgt  
 1981 tgggcggccc cgcgcgcga ccggtccgc gcaccccc gcgcgcgcg cctcaetct  
 2041 tcatcaaca ggaacgagc tggggcgcg cggagccga cgaaggcag tctctgagc  
 2101 ccttcactgt ccaatttcc ggccattca ctggcacag cgaagcctgt cgtacgggc  
 2161 ccttcggtcc tccctccc agccaggct catccggca ggcaggatg ttctcaagc  
 2221 cgcctactc gccagctgc ctcgagagcc agccgcctat tgcgaatcag ggttaagtgg  
 2281 ccggggagcg ccccta

FIGURE 7B

Estrogen Receptor (ER): Homo sapiens estrogen receptor beta gene, promoter region and partial cds (SEQ ID NO:104) Accession Number AF191544

1 actataggc acgcctggtc gacgcccg gctgtgtattg atagatgat ttcttcaac  
61 ctcaactatc ttctttgcc tggtggtta tggttgaat tctticatga cggtttccat  
121 ttccagatg acttgttaa caagatatata ccaccaaatg aagtgattt tttttttt  
181 tttttttga gacagatct cgctctgcg ccaggctgg aatgcagtgg cgccatcttt  
241 gctcatga acctcggct ccactgtca agcgatttc ctgctcagc ctctcgatga  
301 cctgggatta ctggcatgtg ccaccgcgtc cagccaatt ttgtatttt agtagagacg  
361 aggtttcaac atgttggtca ggcgtgttc aaactctga cctcggatc cactgctc  
421 ggcctcccaa agtgcgtgaga ttataggtg gagccaccat gctggccat gaagctgatt  
481 tttttaaac atcatthaac attttctca taaggtggca agaggaaga gcaatggg  
541 actggttact ttgagagacc ccaggacagg agacaggag gctgagattg gcatgtgtgc  
601 tgtgtgagt atttgcagc gacacactct ttccgtccaa actaactct ctgctcaag  
661 gacagggaga ctctgcttt caactgaga gaaaccagg a cctcagctt taatgaaaat  
721 tggactagg ggggggcagt ggaactttt cacagtatt gtttagctga tgaagcagat  
781 gctctccat ctttgagcc tgtcttcatt accttggac ctcatctta tcaaccocaa  
841 gcacattgc ctctctctat ttggctaaa caccaaacag ctgagctgg tactgtaaaa  
901 ctctccctc aaatgcctc cctcgctctc ctctataga catctgnatc acaacctca  
961 aaaaactgt ccttatgcc acctatgcc atggtttgat gattaatag gcacagatgt  
1021 gacactgggg ggtgtcaca atggctgtg ggicacatgc tacttctct ttcatttca  
1081 tcagcaacag ctgctctaaa ccaggttaag actgtgttc tagtctcgca ccttgggct  
1141 cctgtgtggg tgggtgagg gaacaccca ttaagtggg ggaactggg ctgccaccag  
1201 ggggcgcgag gggcttcg cggagaagag ggttgggcag gtgctccag cggagaagg  
1261 cgcggggc ggaggacag gtctcccg tgcactica agtgagtcg aggaagtacc  
1321 tgggacttt gatctaacg cgagggc cctt cccagtacc tcttgaggc tgaagaacca  
1381 ctccctcac ctctagtca cggctttgc acctcaggc cgaggttac gttgtgtct  
1441 ggagattga caaacccaaa gctctcttg ttaccact ggtctcttag aatcacat  
1501 ctgttctgaa tgcacttat atgagtcagg ggcagagac gtgactctcg aagtgtgttc  
1561 ccagactgg tctgtacagt gtcgatcc ccaggacct ggttggaaat gcatatttc  
1621 aggcctact ccagacctt aaatctgag actggggctg cgggagccg catctgtcg

FIGURE 8A

1681 ccactatcct tgtgggtgga ccagagagtCG gttCGaggggt gctcccactt agaggtcaacCG  
 1741 tccCGgtcCG ggcCGgttcttg agacCGtCG gctccctggc tCGgtcaCGt gggtccaggc  
 1801 actactcccc tctacctccc tctCGgtctt taaaaggaag aagggttta tCGttaagtc  
 1861 gcttgatc ttttcagttt ctccagctgc tggctittg gacccact ccccCGccag  
 1921 gagcgattg caagCGCGga gctgCGaga aataactgcc tcttgaact tgcaggCGa  
 1981 ggcCGgtcCG gCGgtcCGgtt ggcCGgggag ggaccaccCG agtgcCGctc ggcgttgggg  
 2041 ctgCGgggca gggctggCGc cCGagacctg agctgcagga ggtgcCGctCG ctctctcaa  
 2101 caggtgCGg CGgggCGcCG GcCGggagac cccctctaat gCGgaaggtt gCGgttCG  
 2161 atttttaga aagccaaggc CGgtgtgttt atctgcaagc cattatactt gcccaCGaat  
 2221 ctttgagaac attataatga cctttggcc tcttcitgea aggtgttttc tgaactgtta  
 2281 tctcaagac attgataaaa aaattcacca tctagcctta attctcctt cctctacac  
 2341 tgcagttcaat ccatctacc cctggagcaCGgtcccatat acataccttc cctctatga  
 2401 gacagccacc atgaatatcc agccatgaca tctctagcc ctgctgtgat gaattacagc  
 2461 attoccagca atgtcaactaa cttggaaggt ggccc

FIGURE 8B

2059579-012603

Unmethylated 288 BP

G ggTGTtttg agatTGtTGg

**TG** agttg**TGaTG** ggtttgg

ccaaacc CATCaaact CA RUM 20 BP AT 58

Methylated 18S rRP

agagtatgacg gCGagCG FM 18 BP AT 60

CGggaaaag taCGtggtCG t

RM 20 BP AT 60

**FIGURE 8C**

[illegible]

**FIGURE 9A**



Forward: 5'  3', 23 bp, 56 (SEQ ID NO:111)  
Reverse: 5' GTGGtttTcTtTtGtATGttTtGGG 3' (SEQ ID NO:112)  
Reverse: 5'  3', 60, 26 bp (SEQ ID NO:113)

H1N1 External primers 209 BP (-213 to -39)

Forward (2): 5'-GTTTCTTAAGAGAACTTT-3' (SEQ ID NO:114)  
Reverse: 5'-CACCGAACAATCAAAACAAACACAC-3' (SEQ ID NO:115)

### Primers for Methylated HIN-1:

Forward: 5'-**GGGAGGATGTTTGGGCTGTC**-3', 24 bp, 60 (SEQ ID NO:116)  
Reverse: 5'-**TACGCTGTTATGGGATGCTGTC**-3', 22 bp, 62 (SEQ ID NO:117)

### Primers for Unmethylated HIN-1:

Forward: 5'-GCTATGGGTTTATGTTGTT-3', 24 bp, 62 (SEQ ID NO:118)  
Reverse: 5'-CAAAACINCTTATACCGAATCTCA-3', 25 bp, 68 (SEQ ID NO:119)

**FIGURE 9B**

Nucleotide sequence of RASFE1A promoter (SEQ ID NO:121)

17701 tcagcaaacC gacacagag gaccagggcC gagtgggg accctcttc tctagcacag  
 17761 taaaagtgc ctccagaaac acgggtatct cCGcgtggtg ctttgcgctC g-cct-cgctg  
 17821 tggcCct-cCG gggtgggtg tgaggagggg acGaaggag gaaggaaagg caaggCGggg  
 17881 ggggctctgC gagagCGcgc ccagcccCGc cttCGggccc cacagtccct gcaccaggt  
 17941 ttccattCG CGgctctct cagctcttc cCG-cGccca gtctggtacc tgggggaggC  
 18001 GctgaagtcG gggccCGccc tgtggcccCG ccCGcccCGc GcttgctagC gcccaagcc  
 18061 agCGcaagcac gggcccaacC gggccatgtC Gggttgcttggtctctg g-cgCGgga  
 18121 gctgggctctc gctggggCGcG ctgggaagg cCGacccCGg ctggagCGtg ccaaCGcCGct  
 18181 gGcatCGcG CGgggcaccG CGtgcaacc cacacCGgcag ctggctccctg gcCGtgcca  
 18241 cGcttccag ccCGcCGggc cCG-cCGca cCGcgtctC Gacctctgtg gCGacttcct  
 18301 ctggggCGctC GggtcGcGg gcttgagtg CGcGcgtgag tagtgggcccC ccCGcGctac  
 18361 gagagCGg ggtgagctc gagctgag gagCG cagtcG-cCG GggtcaagtcC ccGgcagag  
 18421 gggtCGcGg ggacagctcc CGaggactag gtcCGttact ttCG-cccat CGctgaaag  
 18481 tGCGCGaaaa tggtttacc cttgtCGcac tccactCGta tctgggccac agatgagcag  
 18541 aggtggctgc ttatatgtaa aaataCGctg attttaagtt tcttatcttt aaaatgcctt

FIGURE 10A

## SEQUENCING PRIMERS FOR RASSF1A

External Primers 294 BP

gggagtttggtttattttagt RASSF1 ext. F

accccttaactaccctcttc RASSF1 ext. R

Internal MSP Methylated 160 BP

gttggtattc gttggcgc RASSF1 FM (2)

gcaccccggtatcggaaacg RASSF1 RM

Internal MSP Unmethylated 180 BP

ggttgattctggttgagtg RASSF1 FUM

ctacaaacctttacacacac RASSF1 RUM

FIGURE 10B

# Multiplex Methylation-Specific PCR

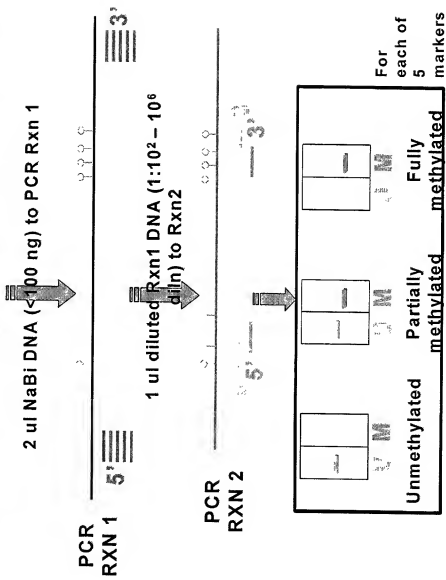


FIGURE 11